

DELIBERATIVE PROCESS- CONFIDENTIAL

**BRIEFING
REGIONAL ADMINISTRATOR
EPA, REGION 4**

**Florida Phosphate Mine Initiative
Region 4, Waste Management Division**

September 12, 2007



SITE: Florida Phosphate
BREAK: 11.13
OTHER: V. 3



U.S. Environmental Protection Agency



10583975

RECENT ACTIVITIES

- EPA and ATSDR “Concept Papers” 2006
 - Reviewed various assessment and cleanup criteria for TENORM
 - Multiple meetings conducted among EPA, ATSDR, and State to discuss results and a path forward
- Aerial reconnaissance of typical mining areas, CERCLIS sites, and residential areas conducted by EPA and FDEP senior managers in July 2007
- ATSDR conducted discussions with FDOH regarding State’s proposed criteria and a path forward
- ATSDR initiated discussions among EPA and the State to facilitate selection of criteria and a path forward
- Increased contact by media and community

MAJOR FINDINGS

EPA & ATSDR CONCEPT PAPERS

- EPA
 - 5pCi/g (above background) of Ra^{226} from UMTRCA used as ARAR for cleanup under residential scenarios to address long-term cancer risks
- ATSDR
 - Uses Minimum Risk Level of 100 mRem/yr to evaluate public health threats from radiation exposures to address observable health effects
 - Concluded that EPA's 5 pCi/g criteria is protective (but could be higher)
 - Concluded that FDOH tiered dose-based approach (i.e., < 100 mRem/yr; > 100 mRem/yr to 500 mRem/yr; and > 500 mRem/yr) would be protective
- Post-Concept Paper Criteria Considered
 - UMTRCA "Supplemental Standards" (site-specific risk-based criteria) can be applied for restricted (non-residential) scenarios
 - FDEP "Risk-Based Corrective Action" discussed as possible criteria; if 10^{-6} used, criteria would default to background of 1 pCi/g; or possible waiver of 10^{-6} and use of 10^{-4} risk level

TENORM CRITERIA

Organization	Criteria			
	Annual Dose (mRem/yr) (Guidance)	Screening Criteria (μ R/hr)	Ra ²²⁶ - Soil (pCi/g) (Regulation)	Chronic Risk
EPA, Superfund	15 (guidance)	20	5	10 ⁻⁴ to 10 ⁻⁶
DOD	--	--	5/15	--
DOE	100	--	5/15	ALARA
ATSDR	100	--	--	--
Florida, DOH	--	20	--	--
AL, GA, MS, SC,LA, TX	--	50	5	--
NCRP - General Population	100/500	--	--	ALARA
CRCPD	100	--	5	--

PROPOSED ACTIVITIES

- Characterization of phosphate mining areas to evaluate potential human health risks from elevated radiation levels
- Characterization by assessment of radiation levels
 - Aerial survey of radiation levels
 - Ground-based survey to further assess elevated levels detected
 - Environmental media sampling to assess local site-specific impacts
- Development and Implementation of Community Involvement strategy

AERIAL SURVEY PROPOSALS

- Pilot Study
 - Coronet and Tenoroc Mines, and Three Residential Areas
 - Cost estimated at approx. 300K
 - Survey could be started in early 2008
- CERCLIS Sites
 - Survey all CERCLIS sites
 - Cost estimated at approx. 1.2M
 - Survey could be started in early 2008

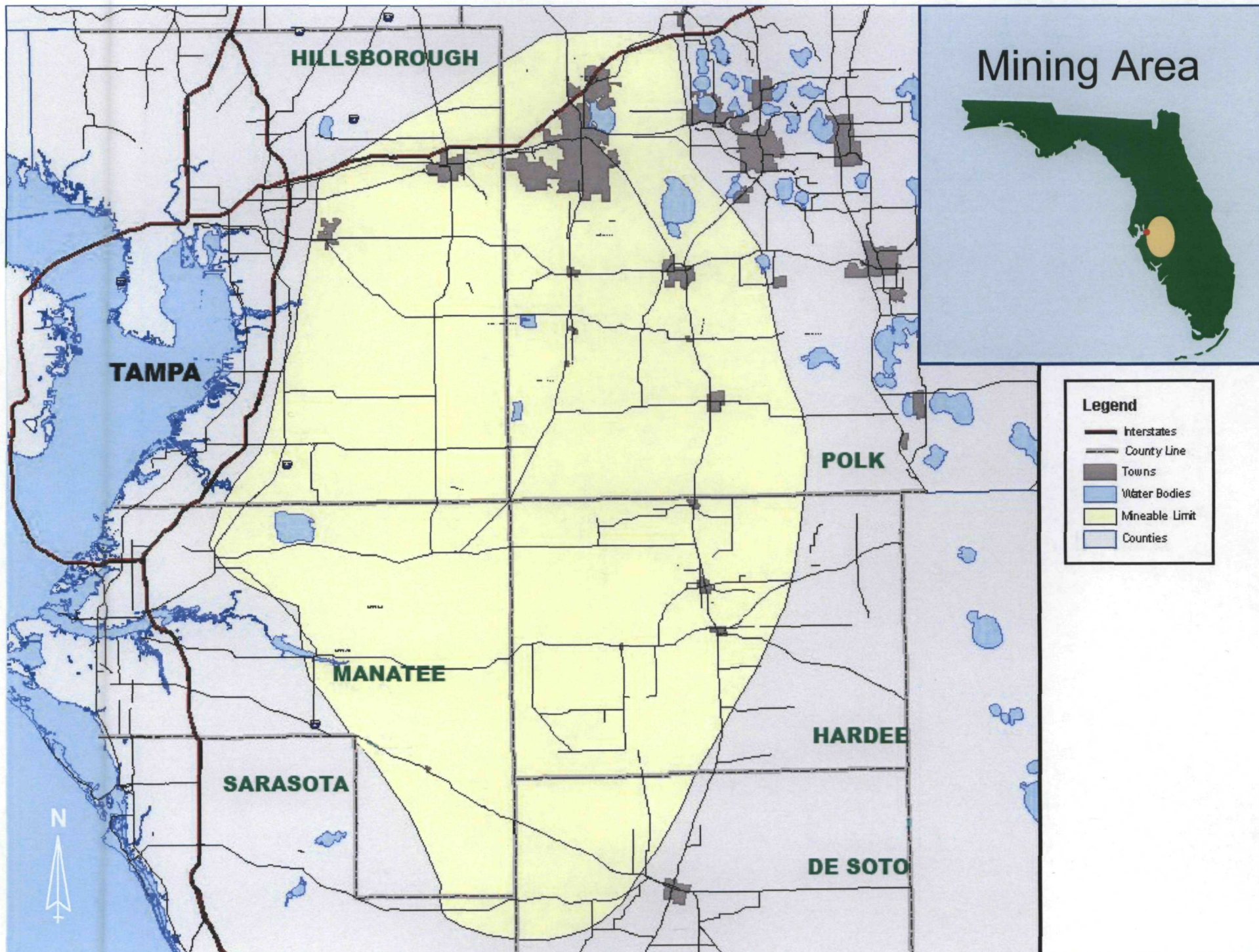
RECENT AND PROPOSED FDEP ACTIVITIES

- July 2007 – FDEP and FDOH conduct preliminary briefing for Governor's staff
- July 2007 – EPA and FDEP conduct aerial recon of mine areas
- August 2007 – FDEP and FDOH conduct internal meeting to discuss criteria and alternatives
- September 2007 – FDEP conduct review of EPA files
- September 2007 – EPA Superfund Director to meet with HQ to review scope of survey and alternatives
- September 2007 – FDEP and FDOH will brief Governor staff on project and communication strategy
- October 2007 – Draft Work Plan to be submitted for EPA and State review
- November 2007 – Work Plan and Communication Strategy approved by EPA and State
- November 2007 – FDEP, in consultation with FDOH, will brief elected officials
- December 2007 – EPA will conduct pilot radiation survey
- January 2008 – EPA will provide draft report to State and HQ for review
- March 2008 – EPA, State, and ATSDR to meet to discuss survey results and applicability for large scale survey
- April 2008 – Final approach determined by EPA and FDEP regarding screening criteria, cleanup levels, and risk management alternatives

SUPPLEMENTAL/BACKGROUND MATERIAL

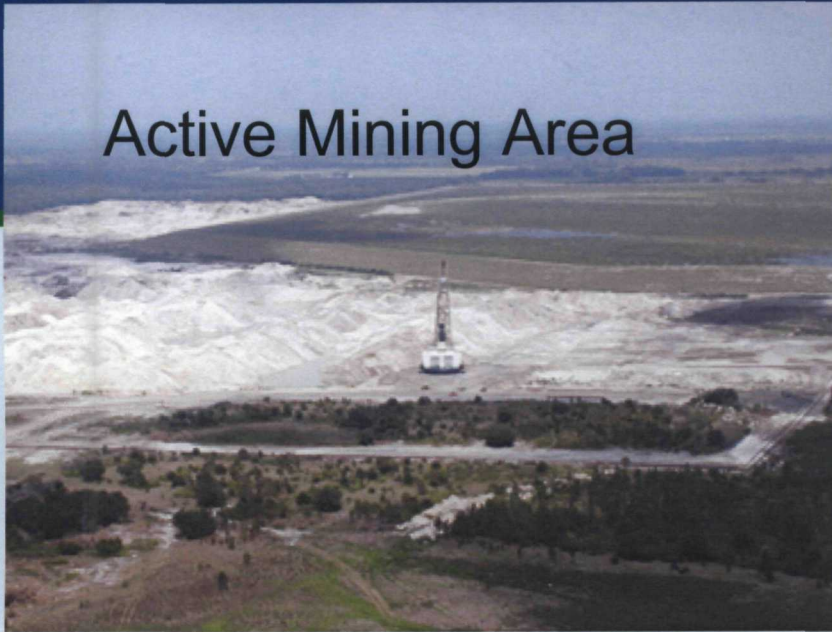
BACKGROUND

- Phosphate Mining conducted in West-Central Florida since late the 1800's.
- Waste by-products contaminated with elevated levels of Radium and Uranium (TENORM).
- State regulates mine operations and reclamation, but not radionuclides.
- Formerly mined land frequently developed for residential use, potentially increasing annual doses of radiation.
- 21 former mine sites in EPA inventory awaiting further characterization.
- Approximately 7,000 acres of residential areas currently located over former mines.
- EPA and State radiation data indicate potential for increases in cancer (1×10^{-3} to 1×10^{-2}) due to increase exposure to radiation.



TYPICAL MINING AREAS

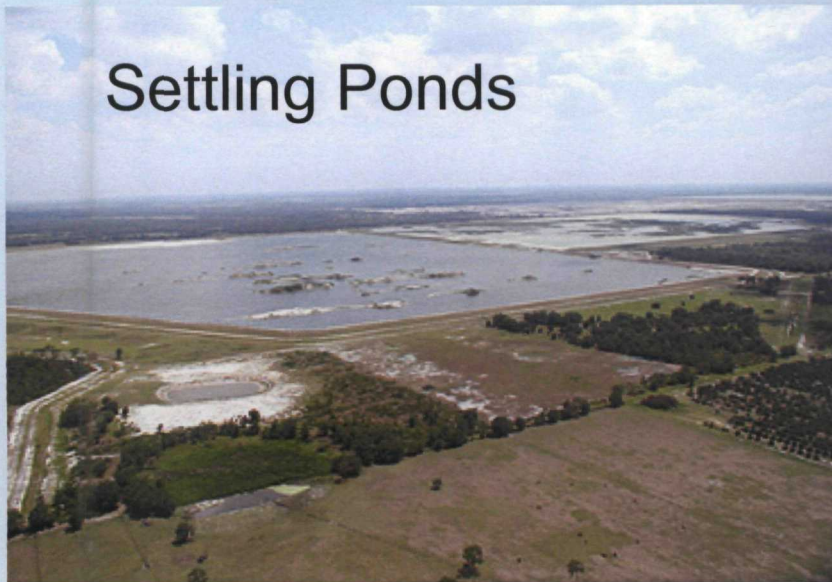
Active Mining Area



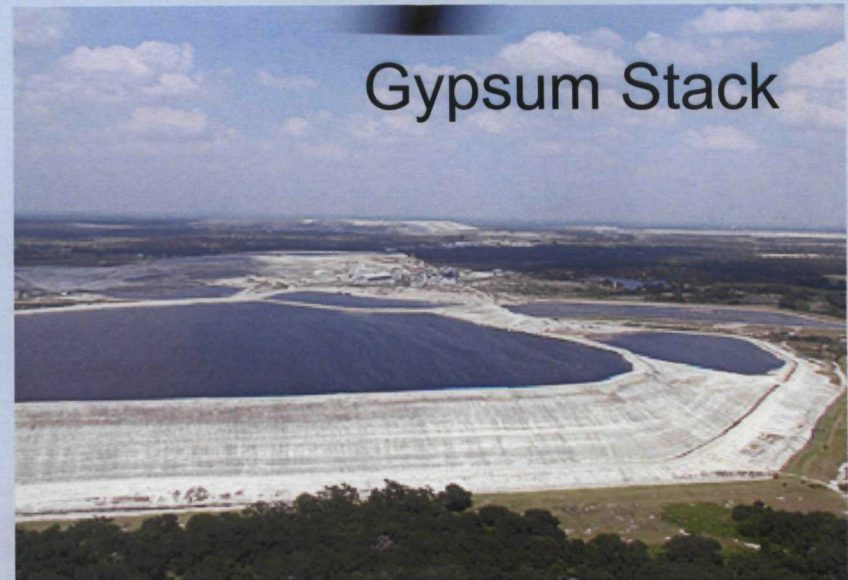
Pre- & Post-Mined Area

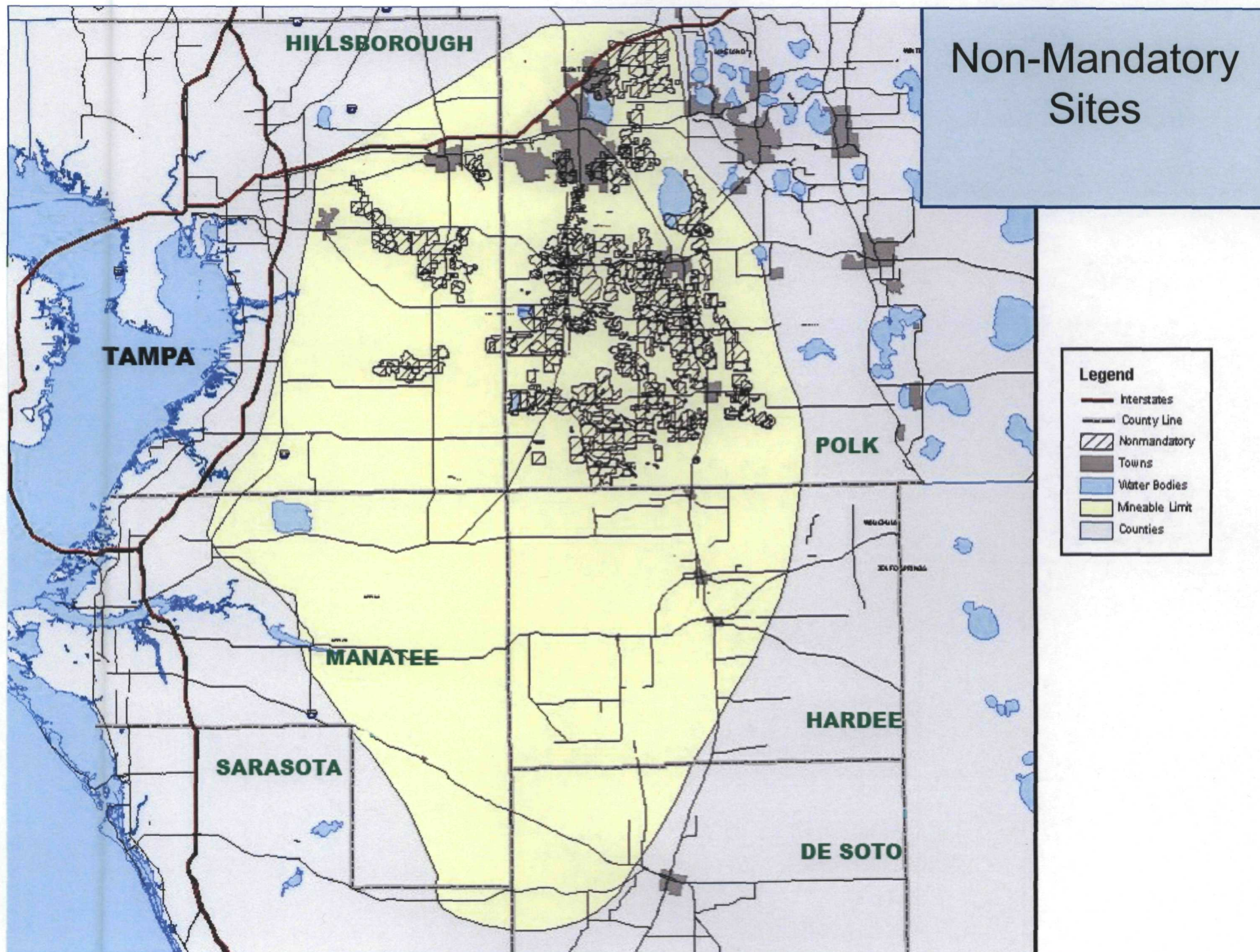


Settling Ponds

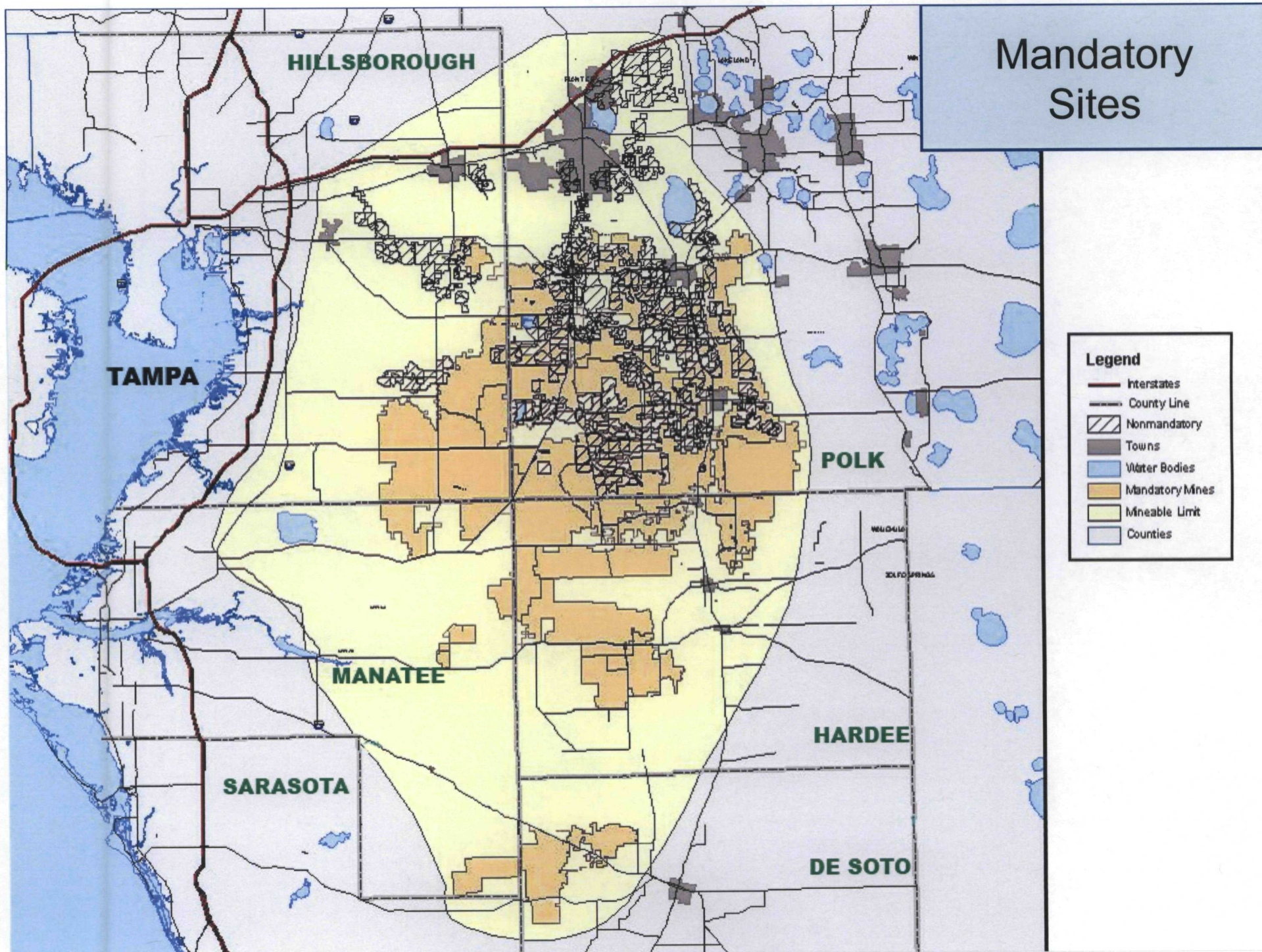


Gypsum Stack

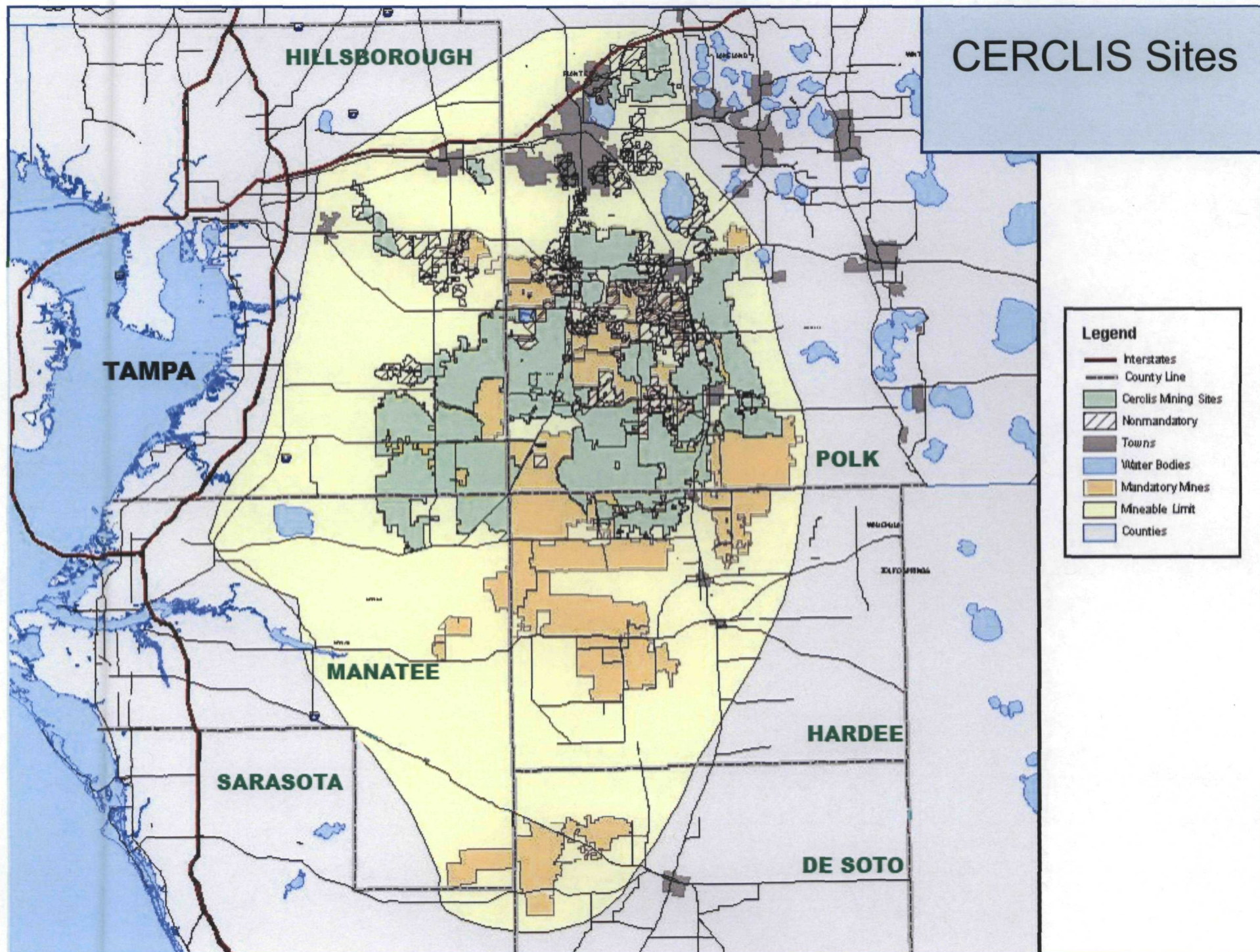




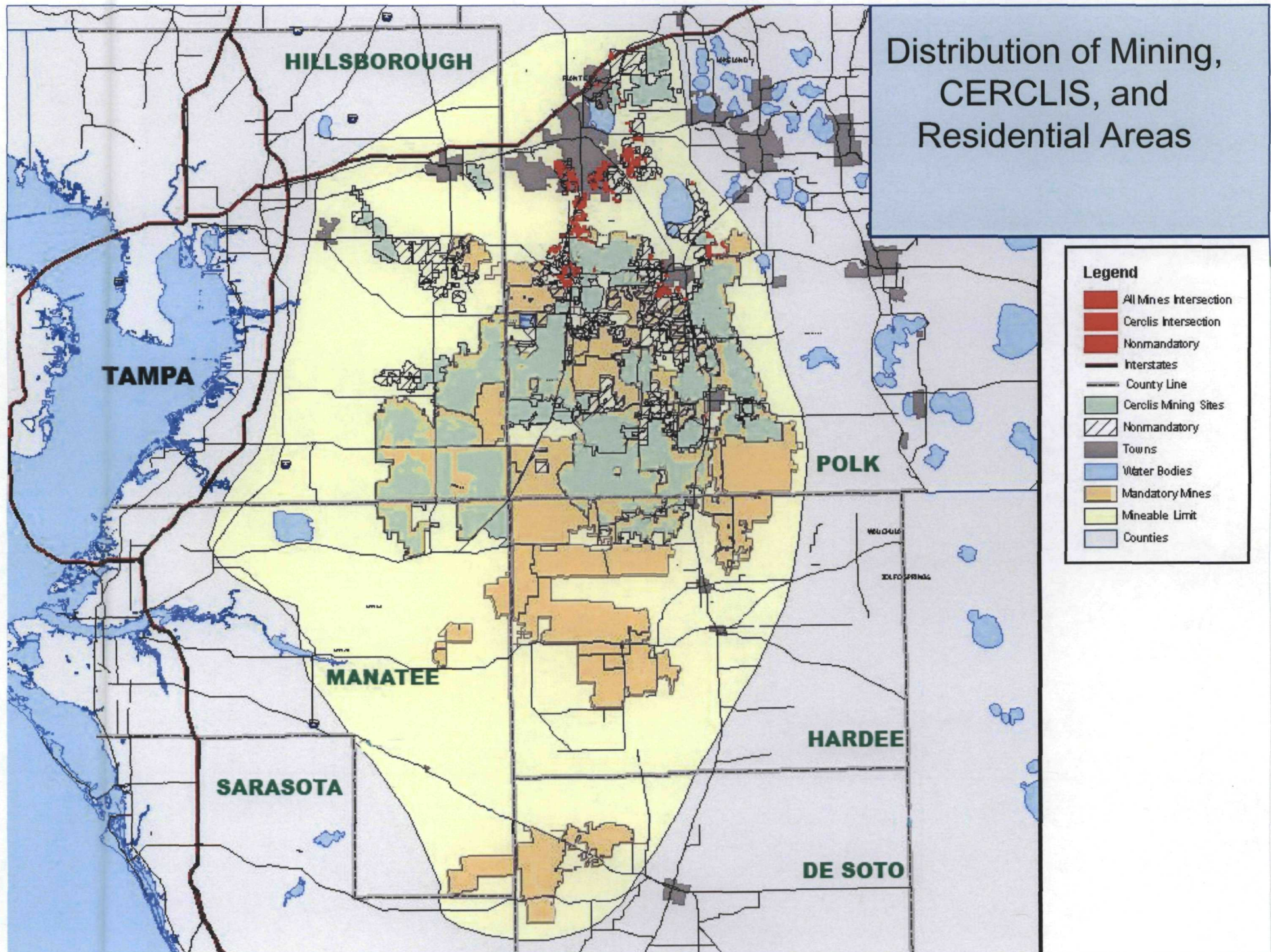
Mandatory Sites



CERCLIS Sites

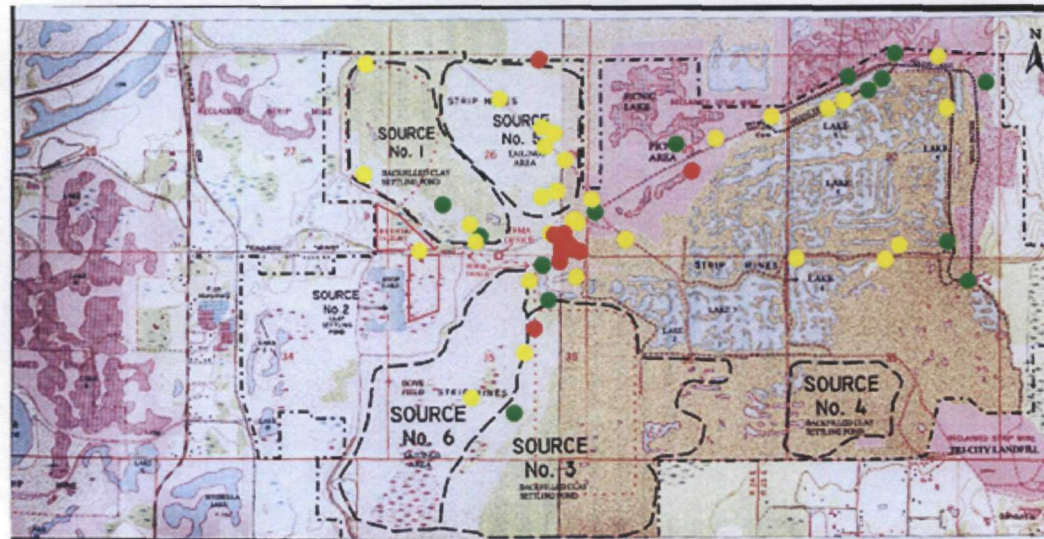


Distribution of Mining, CERCLIS, and Residential Areas



EPA RADIATION DATA UNDEVELOPED MINE

BORDEN CHEMICAL COMPANY / TENOROC MINE RADIATION MEASUREMENT LOCATIONS



Map Scale



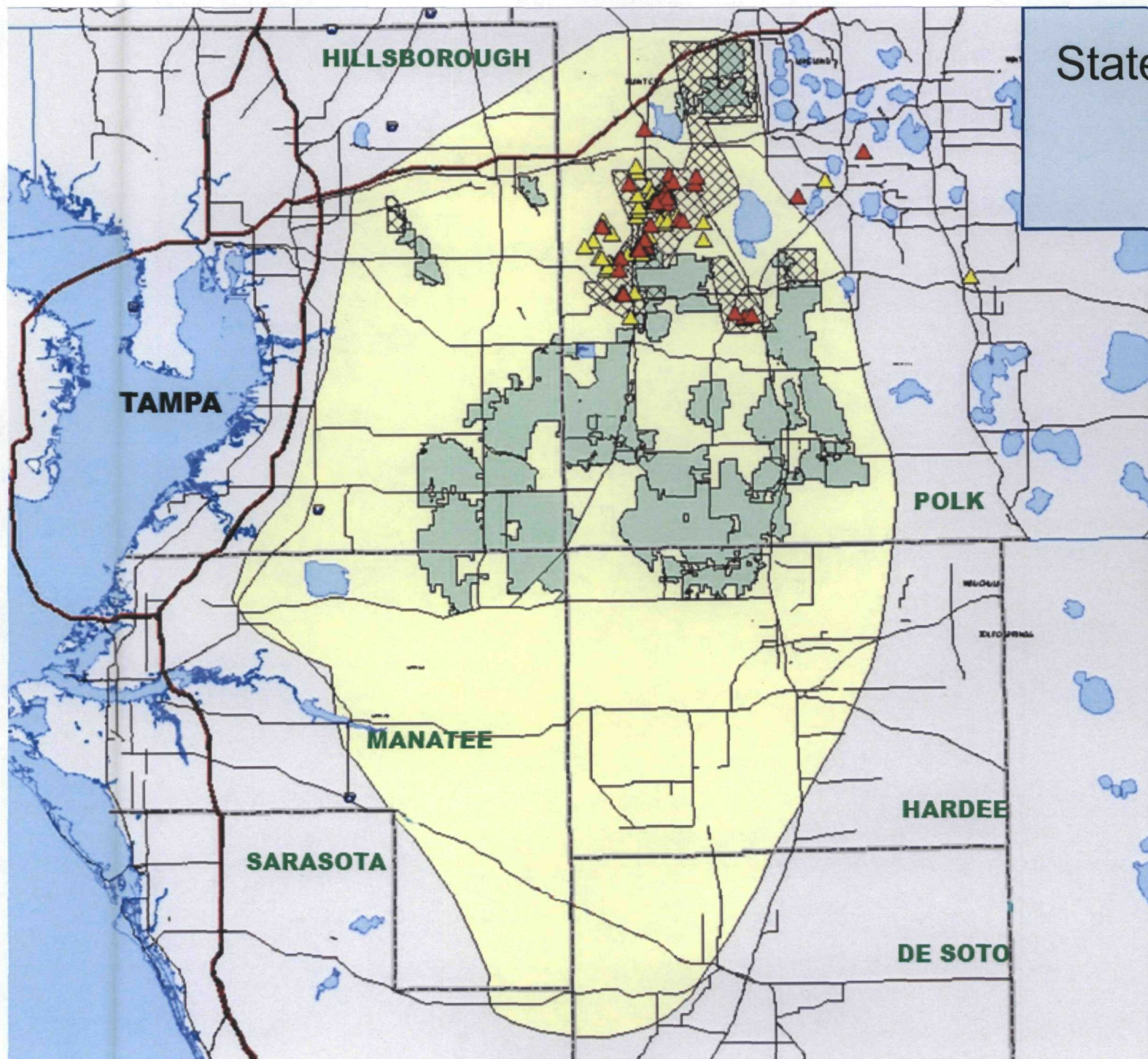
Legend

- < 15 mRem/yr
- > 15 and < 100 mRem/yr
- > 100 and < 500 mRem/yr
- > 500 mRem/yr
- Site Boundaries
- Source Areas



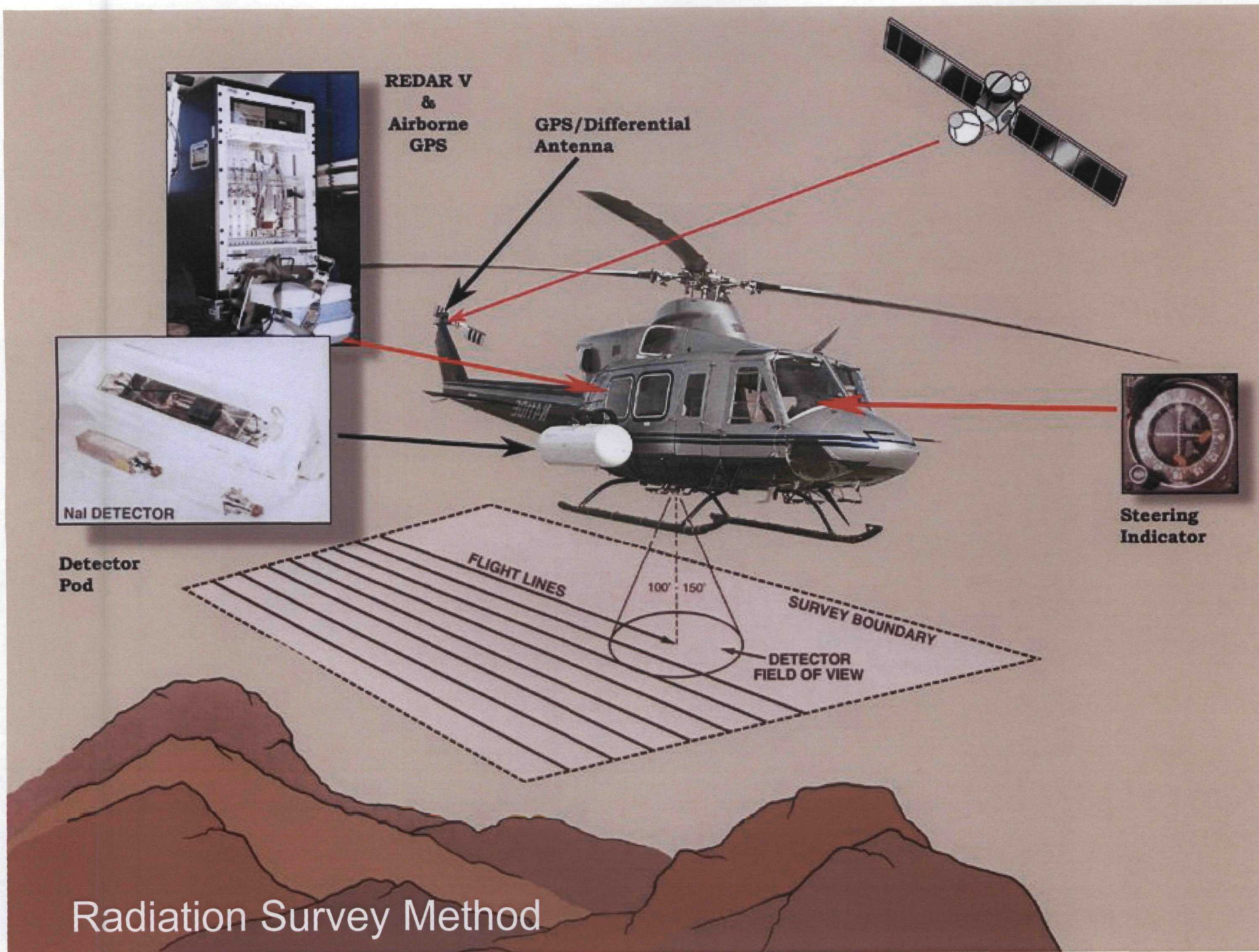
This map is an adaptation of Fig. 2 in the report of July 24, 2000 prepared for the U.S. EPA by Stone Tech PCL Inc.

State Radiation Data



Legend

- Interstate
- County Line
- Order Mining Sites
- Survey Area
- Water Bodies
- Mineral Unit
- County
- page 1
- reshil
- ▲ No Further Action
- ▲ Further Action Indicated



CURRENT PHOSPHATE MINING COMPANIES & CURRENT/FORMER OWNERS OF SAMPLING OF CERCLIS SITES AND DEVELOPED AREA

- **CURRENT MINING COMPANIES**

- CF INDUSTRIES (MID-WESTERN CO-OP)
- MOASIC (FORMERLY CARGILL AND AGRICO)
- PCS PHOSPHATE (CANADIAN COMPANY)
- USAC (CHINA BASED COMPANY)

- **CERCLIS SITES CURRENT/PAST OWNERS/OPERATORS**

- AGRICO; WR GRACE; IMC; CARGILL; AMERICAN CYANAMID; KERR-MCGEE; SEMINOLE FERT.; AMAX; CORONET; BORDEN; FARM LAND IND; ESTECH; SWIFT AGRICULTURAL

- **CHRISTINA BLUFFS RESIDENTIAL AREA**

- W.R. GRACE ORIGINAL OWNER
- MULTIPLE INDIVIDUAL AND BUSINESS OWNERS
- CURRENTLY OWNED BY INDIVIDUAL RESIDENTS